



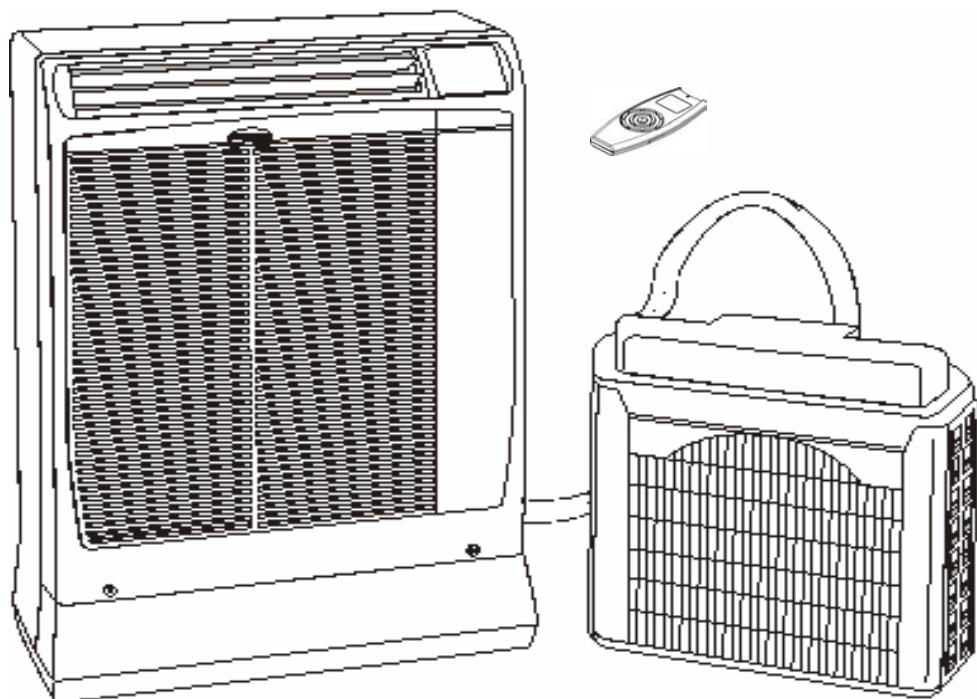
## TECHNICAL DATA & SERVICE MANUAL

**ULISSE 13PCLA**

**AUG38PCLI**

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Model No.	Product Code No.
AUG38PCLI	39.7028.942





## RoHS

This product does not contain any hazardous substances prohibited by the RoHS Directive.



## WARNING

You are requested to use RoHS compliant parts for maintenance or repair.  
You are requested to use lead-free solder.

## IMPORTANT! Please read before installation

This air conditioning system meets strict safety and operating standards.

For the installer or service person, it is important to install or service the system so that it operates safely and efficiently.

### For safe installation and trouble-free operation, you must:

- Carefully read this instruction booklet before beginning.
- Follow each installation or repair step exactly as shown.
- Observe all local, state and national electrical codes.
- Pay close attention to all warning and caution notices given in this manual.
- The unit must be supplied with a dedicated electrical line.



## WARNING

This symbol refers to a hazard or unsafe practice which can result in severe personal injury or death.



## CAUTION

This symbol refers to a hazard or unsafe practice which can result in personal injury or product or property damage.

### If necessary, get help

These instructions are all you need for most installation sites and maintenance conditions.

If you require help for a special problem, contact our sale/service outlet or your certified dealer for additional instructions.

### In case of improper installation

The manufacturer shall in no way be responsible for improper installation or maintenance service, including failure to follow the instructions in this document.

## SPECIAL PRECAUTIONS

- During installation, connect before the refrigerant system and then the wiring one; proceed in the reverse order when removing the units.

## WARNING

### When wiring



**ELECTRICAL SHOCK CAN CAUSE SEVERE PERSONAL INJURY OR DEATH. ONLY QUALIFIED, EXPERIENCED ELECTRICIANS SHOULD ATTEMPT TO WIRE THIS SYSTEM.**

- Do not supply power to the unit until all wiring and tubing are completed or reconnected and checked, to ensure the grounding.
- Highly dangerous electrical voltages are used in this system. Carefully refer to the wiring diagram and these instructions when wiring.
- Improper connections and inadequate grounding can cause **accidental injury and death**.

- **Ground the unit** following local electrical codes.
- The Yellow/Green wire cannot be used for any connection different from the ground connection.
- Connect all wiring tightly. Loose wiring may cause overheating at connection points and a possible fire hazard.
- Do not allow wiring to touch the refrigerant tubing, compressor, or any moving parts of the fan.
- Do not use multi-core cable when wiring the power supply and control lines. Use separate cables for each type of line.

### When transporting

Be careful when picking up and moving the indoor and outdoor units. Get a partner to help, and bend your knees when lifting to reduce strain on your back. Sharp edges or thin aluminium fins on the air conditioner can cut your fingers.

### When installing...

#### ... In a ceiling

Make sure the ceiling is strong enough to hold the unit-weight. It may be necessary to build a strong wooden or metal frame to provide added support.

#### ... In a room

Properly insulate any tubing run inside a room to prevent "sweating", which can cause dripping and water damage to walls and floors.

#### ... In moist or uneven locations

Use a raised concrete base to provide a solid level foundation for the outdoor unit. This prevents damage and abnormal vibrations.

#### ... In area with strong winds

Securely anchor the outdoor unit down with bolts and a metal frame. Provide a suitable air baffle.

#### ... In a snowy area (for heat pump-type systems)

Install the outdoor unit on a raised platform that is higher than drifting snow. Provide snow vents.

### When connecting refrigerant tubing

- Keep all tubing runs as short as possible.
- Use the flare method for connecting tubing.
- Apply refrigerant lubricant to the matching surfaces of the flare and union tubes before connecting them; screw by hand and then tighten the nut with a torque wrench for a leak-free connection.
- Check carefully for leaks before starting the test run.

### NOTE:

Depending on the system type, liquid and gas lines may be either narrow or wide. Therefore, to avoid confusion, the refrigerant tubing for your particular model is specified as narrow tube for liquid, wide tube for gas.

### When servicing

- Turn the power OFF at the main power board before opening the unit to check or repair electrical parts and wiring.
- Keep your fingers and clothing away from any moving parts.
- Clean up the site after the work, remembering to check that no metal scraps or bits of wiring have been left inside the unit being serviced.
- Ventilate the room during the installation or testing the refrigeration system; make sure that, after the installation, no gas leaks are present, because this could produce toxic gas and dangerous if in contact with flames or heat-sources.

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# 1. SPECIFICATIONS

## 1-1 Unit Specifications

AUG38PCLI

<b>Power Source</b>	230 V ~ 50 Hz	
<b>Voltage Rating</b>	V	230
<b>Available Voltage Range</b>	V	198 - 264
<b>Running Ampere</b>	A	5,60
<b>Power Input</b>	W	1245
<b>Power Factor</b>		0,96
<b>C.O.P.</b>	W/W	3,21
<b>Compressor Locked Rotor Amperes</b>	A	35
<b>Performance</b>		
Capacity	BTU/h	13640
	kW	4,00
Air Circulation	High/Med./Low	m <sup>3</sup> /h
Moisture Removal	High Speed	l/h
Power Noise Level Indoor Unit (1)	High/Med./Low	dB-A
Power Noise Level Outdoor Unit (1)		dB-A

<b>Features</b>		
Controls / Temperature Controls		Microprocessor / I.C. thermostat
Control Unit		Wireless remote control
Timer		ON/OFF 24 Hours & Daily Program
Fan Speed Indoor / Outdoor Unit		3 and Auto / 1
Airflow Direction	Vertical	Manual
	Orizzontal	Manual
Air Filter		Washable/ Easy Access
Compressor		Rotary (Hermetic)
Refrigerant Gas		R410A
Refrigerant Standard Charge at Shipment	g	1150
Refrigerant Control		Capillary Tube
Condensate Drain System		Automatic with Pump

<b>Dimensions &amp; Weight</b>		
Indoor Unit	Height	mm
	Width	mm
	Depth	mm
Outdoor Unit	Height	mm
	Width	mm
	Depth	mm
Net Weight	Internal Unit	kg
	External Unit	kg

DATA SUBJECT TO CHANGE WITHOUT NOTICE

### NOTE

Rating Cooling Conditions:

- Outside Air Temperature: 35°C DB
- Inside Air Temperature: 27°C DB, 19°C WB

(1) Reference data: room size 100 m<sup>3</sup>, reverberation time 0,5 s, distance 2 m.

## 1-2 Major Component Specifications

AUG38PCLI

### Controller PCB

Model	SAC ON-OFF IDU	
Controls	Microprocessor	
Control Circuit Fuse (F1)	250VAC - 3,15A - T	
Jumper Setting JP1 ... JP5		2,54mm - 5 pcs

### Remote Control Unit

SAC WREM

### Thermistor Coil Sensor

NTC (with Brass Pipe)

Resistance at 25°C	kΩ	10 ± 3%
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### Thermistor Room Sensor (TH Room)

Resistance at 25°C	kΩ	10 ± 5%
--------------------	----	---------

### Fan Motor Indoor Unit (FMI)

Model	K35406-MO2024	
Number / Diameter / Length	mm	
No. Of Pole - RPM High/Med./Low (230V)	Cross-Flow / Ø 100 / 410	
Nominal Input	W	
Coil Resistance at 25°C	Ω	4 - 1350/1275/1165
	Ω	GRY-WHT: 545 ÷ 630 ± 5%
	Ω	WHT-VLT: 92 ÷ 105 ± 5%
	Ω	VLT-ORG: 62 ÷ 71 ± 5%
	Ω	GRY-BRN: 78 ÷ 90 ± 5%
Safety Device	Internal Bimetallic Type	
Setting	Operating temp.	Open °C
		150 ± 10
		Close
Run Capacitor (C)	μF	Autoreset
		2,00
	VAC	440

### Fan Motor Outdoor Unit (FMO)

Model	K35610-MO1525	
Diameter	mm	
No. Of Pole / RPM (230V)	Ø 340	
Nominal Input	W	
Coil Resistance at 25°C	Ω	6 / 885
	Ω	75
	Ω	BLU-BRN: 230 ± 5%
	Ω	BLU-BLK: 243 ± 5%
Safety Device	Internal Bimetallic Type	
Setting	Operating temp.	Open °C
		150 ± 5
		Close
Run Capacitor (C)	μF	Autoreset
		2,5
	VAC	450

### Compressor

Rotary (Hermetic)

Model	80235455	
Nominal Cooling Capacity	W	
Compressor Oil: RB68A or Freol Alpha68M	cc	
Compressor Oil: DAPHNE FV68S or equivalent	cc	
Coil Resistance at 20°C	Ω	*C-R : 2402
*at 25°C	Ω	*C-S : 3582
Run Capacitor (C)	μF	30
	VAC	450

### Overload Relay (OLR)

External

Operating Temperature	Open °C	150 ± 5%
	Close °C	69 ± 11%
Short Time Trip	6-16 Sec. At 25°C	A
		23,5

DATA SUBJECT TO CHANGE WITHOUT NOTICE

**Condensate Pump**

Model	PC 95643
Rating	230V - 50Hz
Nominal Input	W
Coil Resistance at 20°C	Ω

**Safety Float Switch**

Model	F83161,3
Contact Rating	10(4)A - 250VAC
Float	Up
	Down

**Heat Exchanger Coil (Evaporator)**

Coil	Alluminium Plate Fin / Copper Tube
Rows	2
Fin Pitch	mm
Face Area	m <sup>2</sup>

**Heat Exchanger Coil (Condenser)**

Coil	Alluminium Plate Fin / Copper Tube
Rows	3
Fin Pitch	mm
Face Area	m <sup>2</sup>

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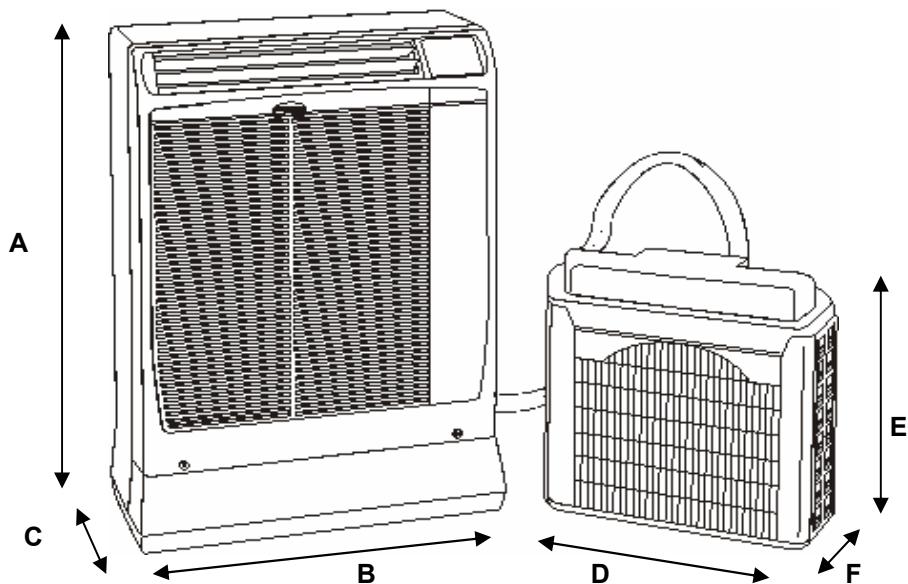
**1-3 Other Component Specifications****OPERATING RANGE**

	Temperature	Indoor Air Intake Temperature	Outdoor Air Intake Temperature
Cooling	Maximun	32°C DB / 23°C WB	46°C DB
	Minimun	19°C DB / 14°C WB	19°C DB
Dry	Maximun	32°C BS / 80% R.U.	43°C DB
	Minimun	16°C BS / 80% R.U.	16°C DB

DATA SUBJECT TO CHANGE WITHOUT NOTICE

## 2. DIMENSIONAL DATA

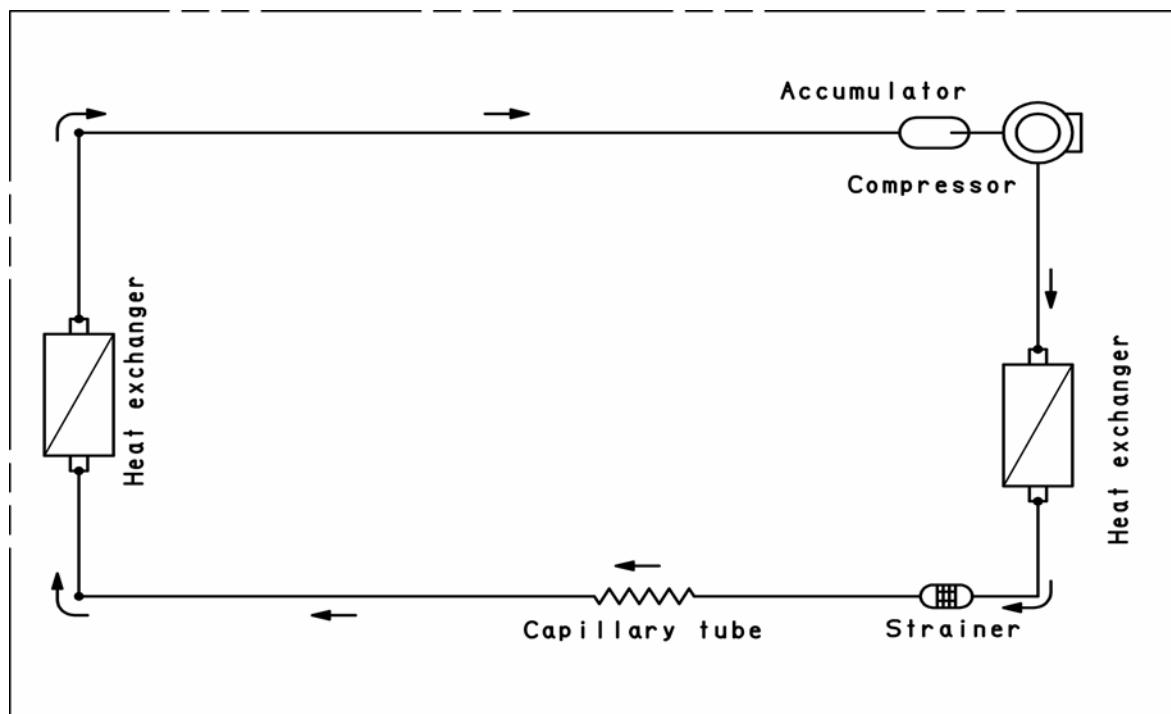
### 2-1 Unit Dimensions



	AUG38PCLI
A	790
B	580
C	245
D	525
E	490
F	250

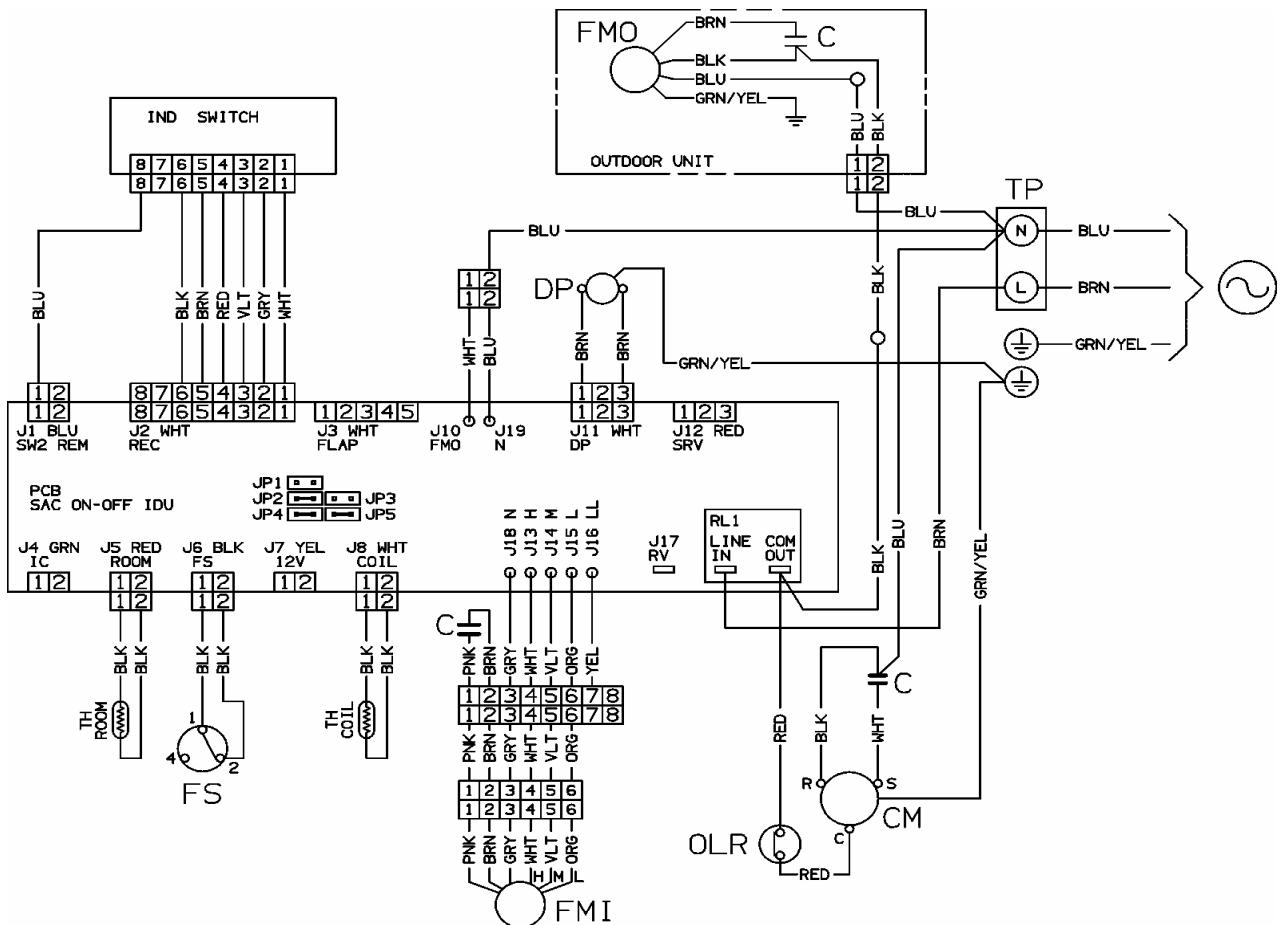
### 3. REFRIGERANT FLOW DATA

#### 3-1 Refrigerant Flow Diagram



## 4. ELECTRICAL DATA

### 4-1 Electric Wiring Diagram



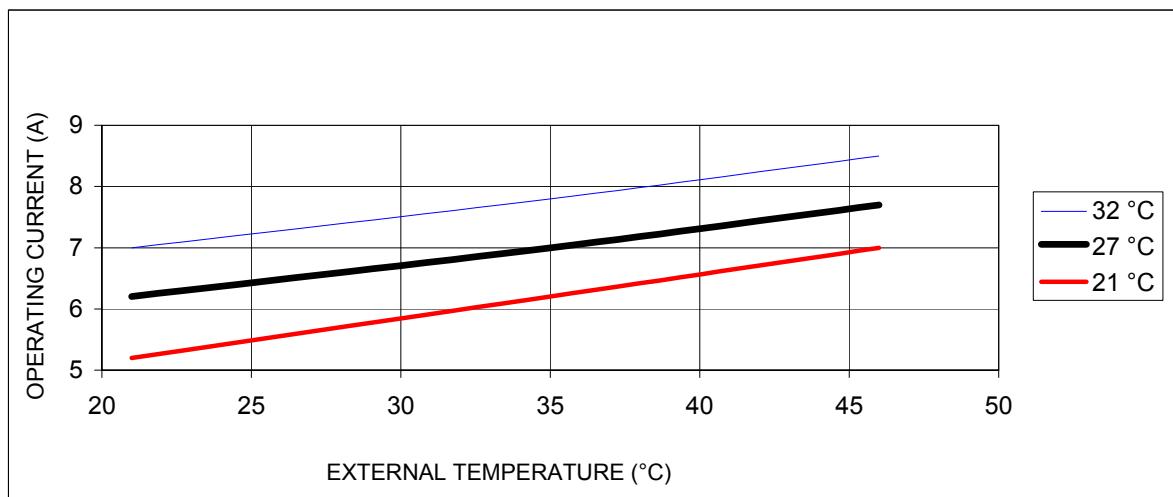
<b>PCB</b>	Controller	<b>SWITCH</b>	Switch Assy
<b>FMI</b>	Indoor fan motor	<b>IND</b>	Indicator assy
<b>CM</b>	Compressor motor	<b>TH</b>	Thermistor
<b>OLR</b>	Overload relay	<b>TP</b>	Terminal plate
<b>FMO</b>	Outdoor fan motor	<b>FS</b>	Float switch
<b>C</b>	Capacitor		
<b>DP</b>	Drain Pump		

## 5. PERFORMANCE DATA

### 5-1 Performance Chart

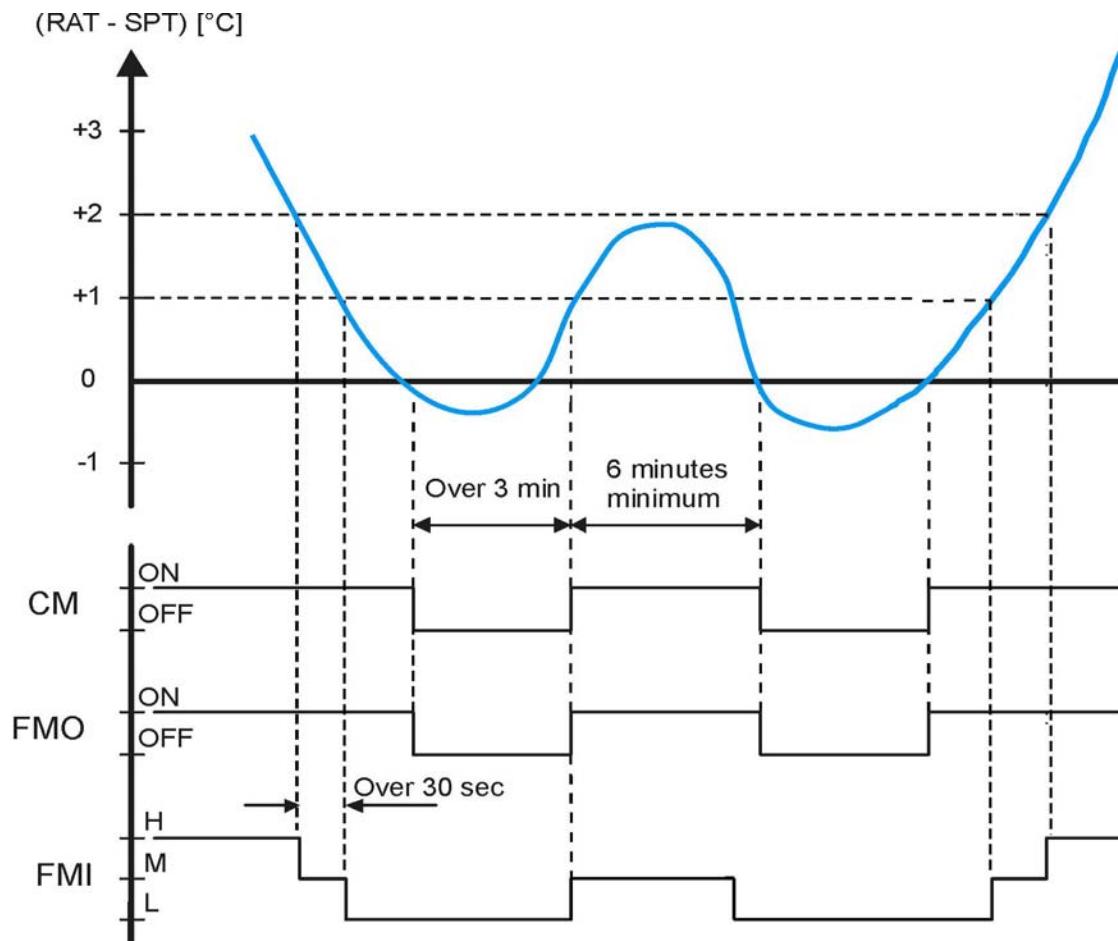
Operation characteristics with relative humidity around 50%.

AUG38PCLI



## 6. FUNCTIONS

### 6-1 Cool Mode Operation



In Cooling Mode, the operation of the compressor (CM), Outdoor Fan (FMO) and Indoor Fan (FMI) are determined by the difference between the room air temperature (RAT) and the set point temperature (SPT) as shown in the graph.

#### NOTES

1. In this graph, the FMI is operating with the "Auto Fan Speed" setting. If the user has selected the Low, Medium or High fan speed, the FMI will run constantly at that speed only.
2. In addition to the temperature difference of above, the operations of the main components (CM, FMO, FMI) is also controlled by protection delays. That is: - the minimum off time of compressor is 3 minutes. - the minimum off time of compressor is 3 minutes. - the indoor fan can change speed only after it has operated at the same speed for 30 sec if in AUTO and 1 sec for the other settings (High, Med, Low).

## 6-2 Dry Mode Operation

Dry operation remove moisture from indoor air running, in cooling mode, at a low level without reducing the ambient temperature. This is done cycling ON and OFF indoor and outdoor units according to below.

ROOM TEMPERATURE	DRY LEVEL	
$\geq SPT+2^{\circ}C$	LEVEL 0	Operation according to COOLING mode
$< SPT+2^{\circ}C$ $\geq SPT-1^{\circ}C$	LEVEL 1	CM ON FMO ON FMI switches between L and OFF (30 seconds)
$< SPT-1^{\circ}C$ $\geq 15^{\circ}C$	LEVEL 2	CM switches 9 minutes OFF and 3 minutes ON FMO switches 9 minutes OFF and 3 minutes ON FMI switches OFF and L during CM operation
$< 15^{\circ}C$	DRY OFF ZONE	CM OFF FMO OFF FMI OFF

SPT = Set Point Temperature

## 6-3 Fan Mode Operation

With this mode, the indoor fan is turned ON while CM and FMO stay OFF all the time. The user can select between 4 speeds: HIGH, MEDIUM and LOW.

## 6-4 Auto Fan Speed

With this option selected, the indoor fan speed changes automatically according to the difference between the detected air temperature (RAT sensor) and the set point (SPT):

### COOLING MODE

$2 \leq (RAT - SPT):$	HIGH speed
$1 \leq (RAT - SPT) < 2:$	MEDIUM speed
$(RAT - SPT) < 1:$	LOW speed

### NOTE

SPT = Set Point Temperature

## 6-5 Forced Mode

In this mode the system operates (COOLING or HEATING mode – fixed settings) or is switched off by means of the MODE button of the indoor unit control board. The operation modes can be selected pressing the button in a cyclic way (OFF  $\Rightarrow$  COOL  $\Rightarrow$  HEAT  $\Rightarrow$  OFF...). The settings are:

### **COOLING mode**

SET POINT temperature = 25°C  
FAN SPEED = HIGH

## 6-6 Protection Operations in Cool and Dry Mode

### **Freeze-up**

This protection prevents ice formation on the indoor coil heat exchanger.

The protection is activated by the indoor coil temperature (ICT sensor) and only after 6 minutes of compressor operation.

This protection acts in 2 levels:

#### **LEVEL 1**

INDOOR FAN SPEED: ANY (as selected from remote controller)

COMPRESSOR: ON

OUTDOOR FAN: cycling (30 seconds ON  $\Rightarrow$  30 seconds OFF).

DRAIN PUMP: operates according to paragraph 9.2

#### **LEVEL 2**

INDOOR FAN SPEED: ANY (as selected from remote controller)

COMPRESSOR: OFF for at least 6 minutes and until  $ICT \geq 8^{\circ}C$

OUTDOOR FAN: OFF for at least 6 minutes and until  $ICT \geq 8^{\circ}C$

DRAIN PUMP: always ON ( stops when exiting the protection)

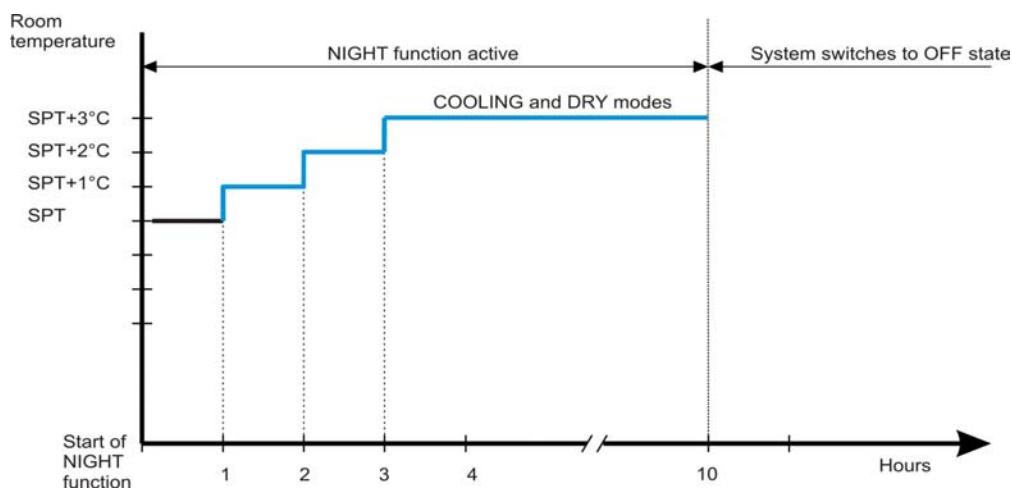
The system exits this protection routine when ICT temperature rises above  $8^{\circ}C$ .

## 6-7 I FEEL Function

As standard configuration the air conditioner operates detecting the room temperature through the sensor equipped in the wireless remote controller (icon I FEEL shown on the display). This feature provides a personalised environment since the temperature can be detected where the remote controller is located. It is possible to de-activate this option pressing the I FEEL button on the remote controller. In this case the I FEEL icon is no longer displayed and room temperature is detected through the sensor included in the indoor unit.

## 6-8 NIGHT Function

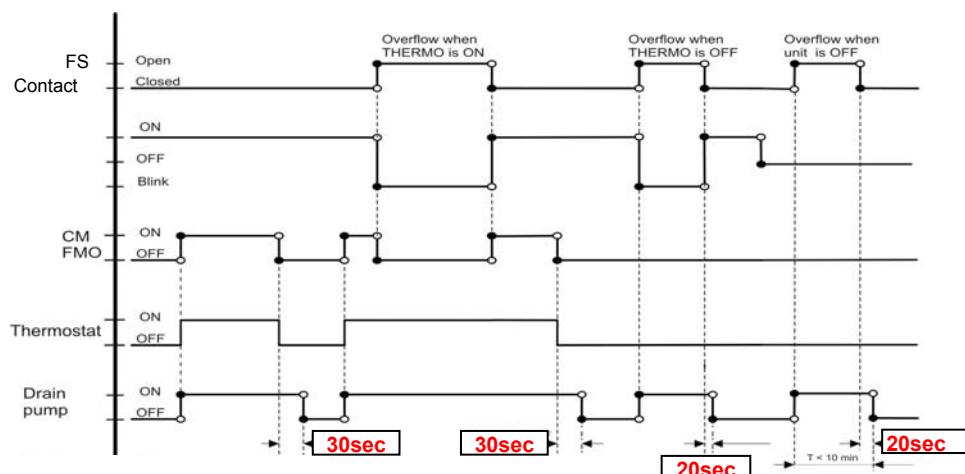
When this function is active, room temperature changes automatically to compensate for body temperature variations while sleeping. After 10 hours of operation system switches automatically to OFF state. This mode of operation is available both in COOLING and HEATING mode. When running in this mode indoor fan is automatically switched to LOW speed.



## 6-9 DRAIN PUMP

Pump operates when the unit is running in COOLING and DRY modes.

The level detection is done through a float switch connected at the input FS (closed under normal condition, and opened when water overflow). System operation is according to the following chart:



## 7. DIAGNOSTIC

With this feature is possible to have a visual signal that a trouble is occurring.

This mode is always active and the signalling is made through the display board LEDS .

In case of no troubles the LEDS status follows its normal function.

### NOTES

- The troubles are showed according a priority list that is in case of more than one trouble present, is always showed, at first, the one with the highest priority (1 ⇒ 2 ⇒ 3 etc).
- Sensor damaged means a situation where sensor is short-circuited or opened.
- In case of damaged sensors, the system (CM, FMO, FMI etc), if in OFF state, does not start.
- WRONG MODE SELECTED means a situation where the operating mode chosen with remote controller does not comply with the one allowed by jumpers settings.

Priority	TROUBLE	LEDS status			Effects
		LD1(stby)	LD2(opr)	LD3(timer)	
1	No parameters	●	F	O	System does not operate
2	RAT damaged	F	O	O	
3	ICT damaged	F	F	O	
4	WRONG MODE SELECTED	F	F	F	
5	Water level alarm	O	F	O	See paragraph 6-9 DRAIN PUMP

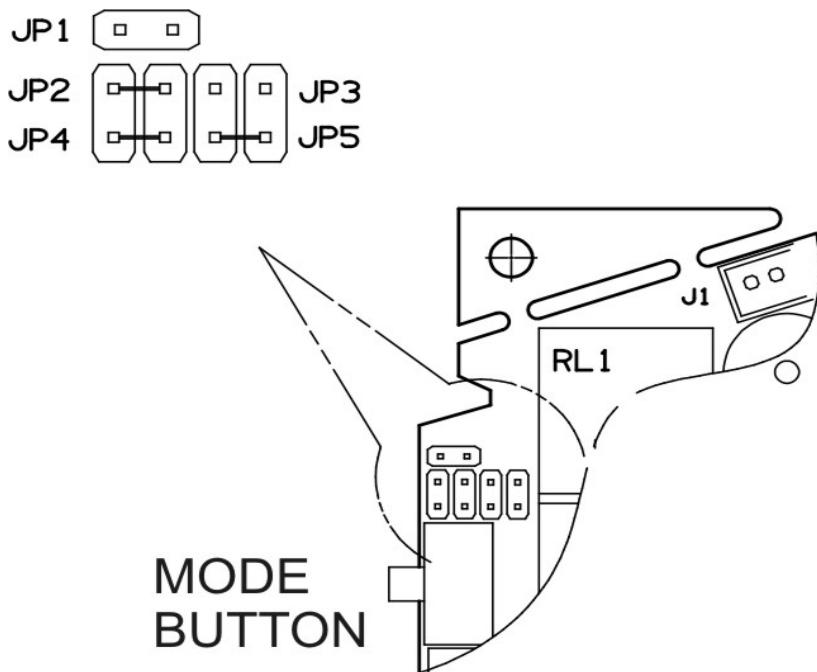
O = LED off

● = LED on

F = LED blinking

## 8. JUMPERS CONFIGURATION

Jumpers are located on the indoor PCB near the MODE button.



Unit is shipped with jumpers set according to the following table:

JUMPER	STATUS
JP1	open
JP2	closed
JP3	open
JP4	closed
JP5	closed

## 9. MAINTENANCE

### Changing the Address of the Air Conditioner

In case of more than one air conditioner operating in the same room, it may be necessary to assign an address to each unit in order to avoid operation conflicts.

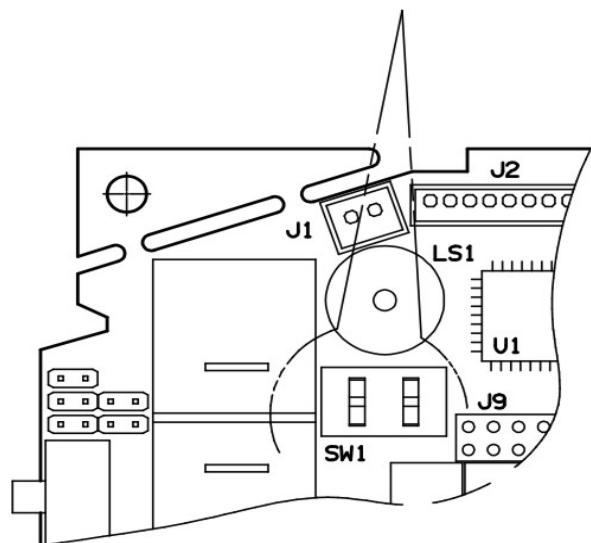
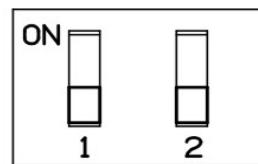
Address is set acting on the dip-switches located on the indoor PCB and on the remote controller. The PCB settings must match the corresponding ones on the wireless remote controller.

#### How to change address of the air conditioner

Dip switch is located on the indoor PCB near the buzzer.  
Set the PCB to the address desired

UNIT ADDRESS	SETTINGS	
	SW1	SW2
1	off	off
2	off	on
3	on	off
4	on	on

As default switches SW1 and SW2 are in off status (PCB factory state).

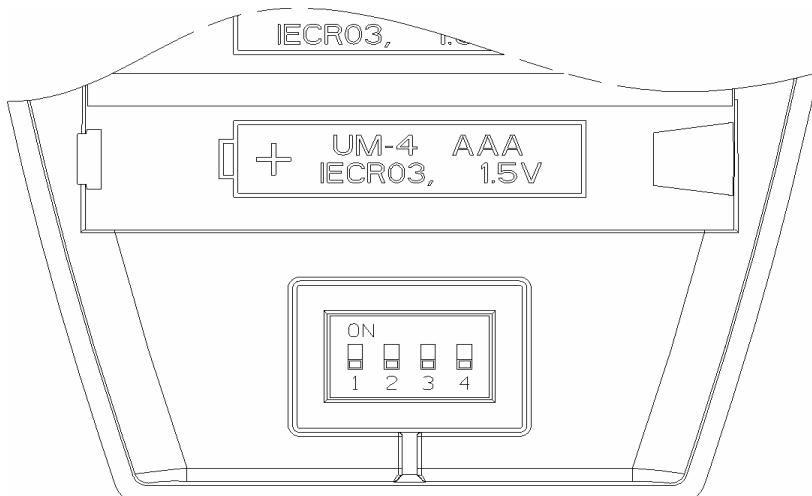


#### How to change address on Remote Control Unit

Dip switch is located on the battery compartment.

- 1) Pull out the door and remove the batteries.
- 2) Set the switch SW1 and SW2 according to the indoor PCB settings  
(do not act on SW3 and SW4)
- 3) Insert the batteries and pull on the door

As default switches SW1 and SW2 are in off status (remote controller factory state).



# 10. TROUBLESHOOTING

## CHECK BEFORE AND AFTER «TROUBLESHOOTING»

### (A) Check power supply wiring.

- Check the power supply wires are correctly connected.

### (B) Check power supply.

- Check that voltage is in specified range ( $\pm 10\%$  of the rating).
- Check that power is being supplied.

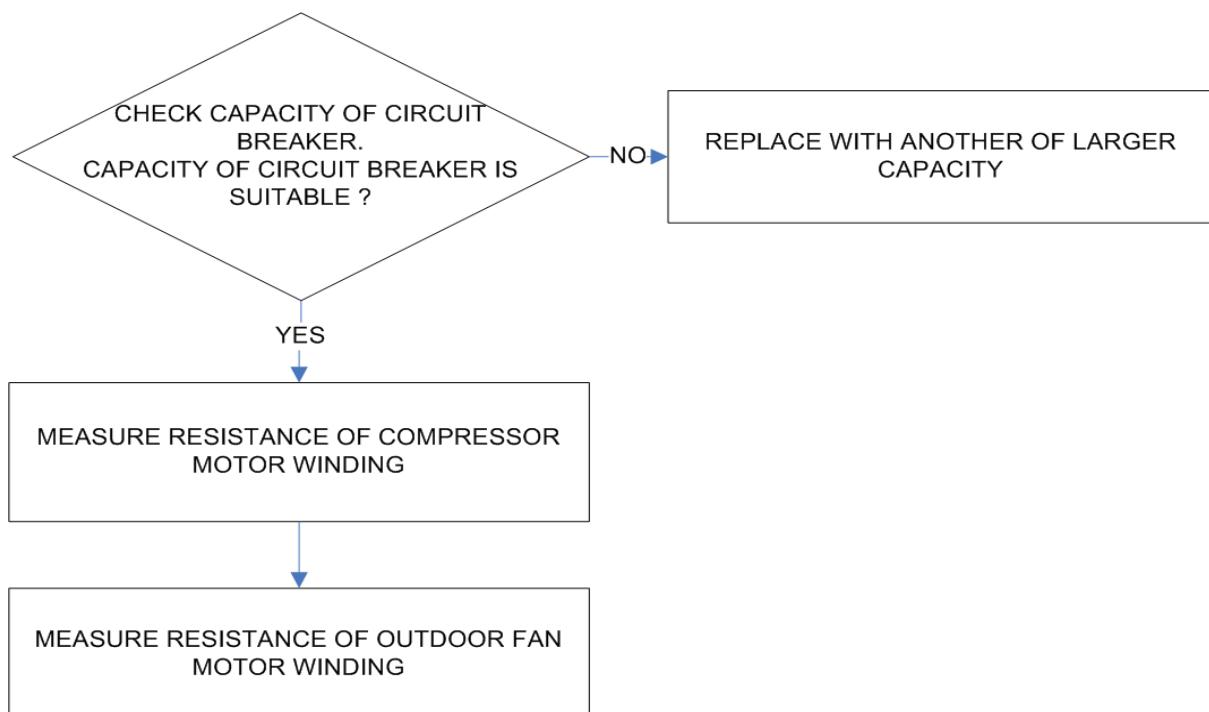
- **WARNING:** If the following troubleshooting must be done with power supplied, be careful not to touch any uninsulated live part that can cause ELECTRIC SHOCK.

### **A** CIRCUIT BREAKER TRIPS OR FUSE BLOWS.

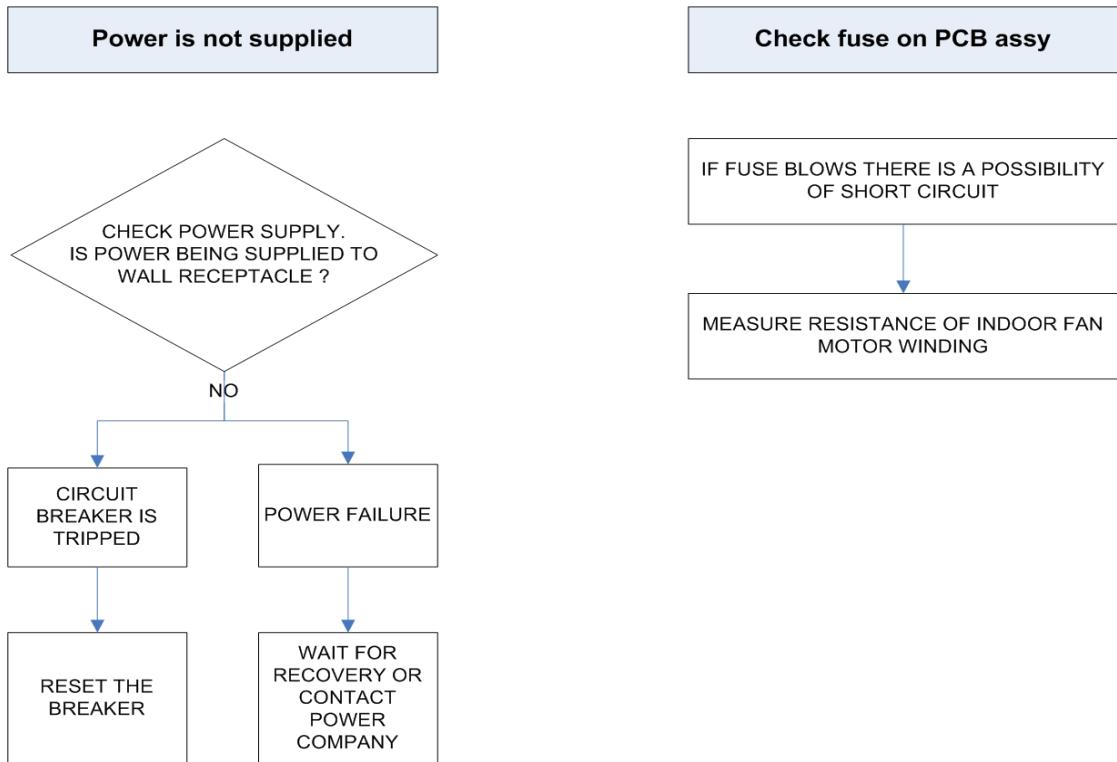
- When circuit breaker is set to ON, it trips in a few moments. Resetting is not possible.
- Measure insulation resistance. There is a possibility of ground fault.  
If resistance value is 1 Mohm or less, insulation is defective.

### **B** CIRCUIT BREAKER TRIPS IN SEVERAL MINUTES AFTER TURNING AIR CONDITIONER ON.

- 1 • There is the possibility of short circuit.



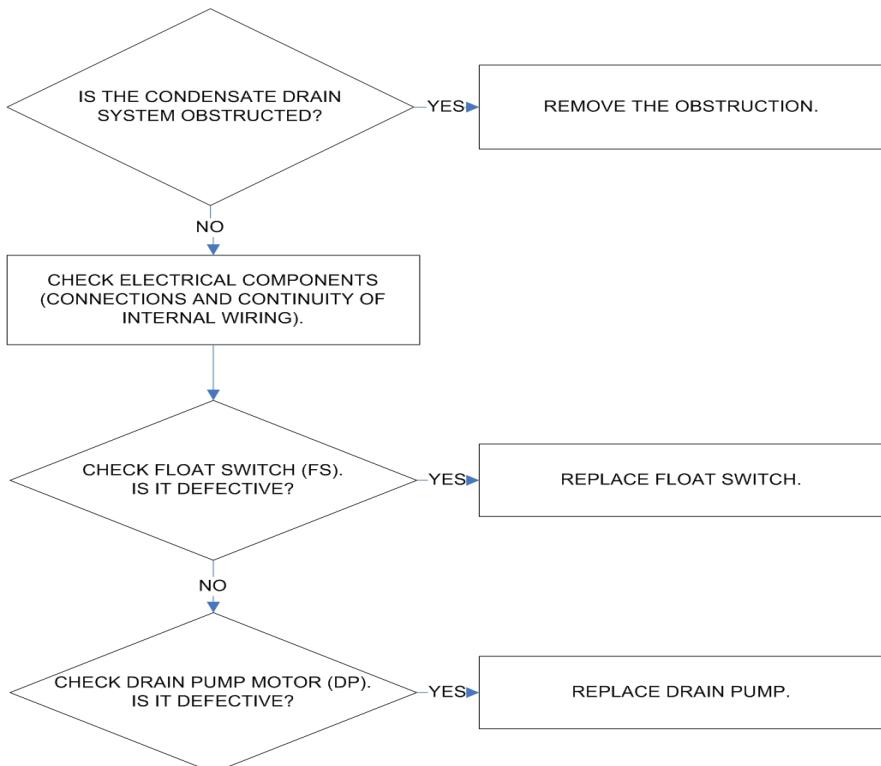
2 • The unit does not run.



### **C** WATER LEVEL ALARM - OPERATION LAMP IS BLINKING.

Malfunctioning of the condensate drainage system.

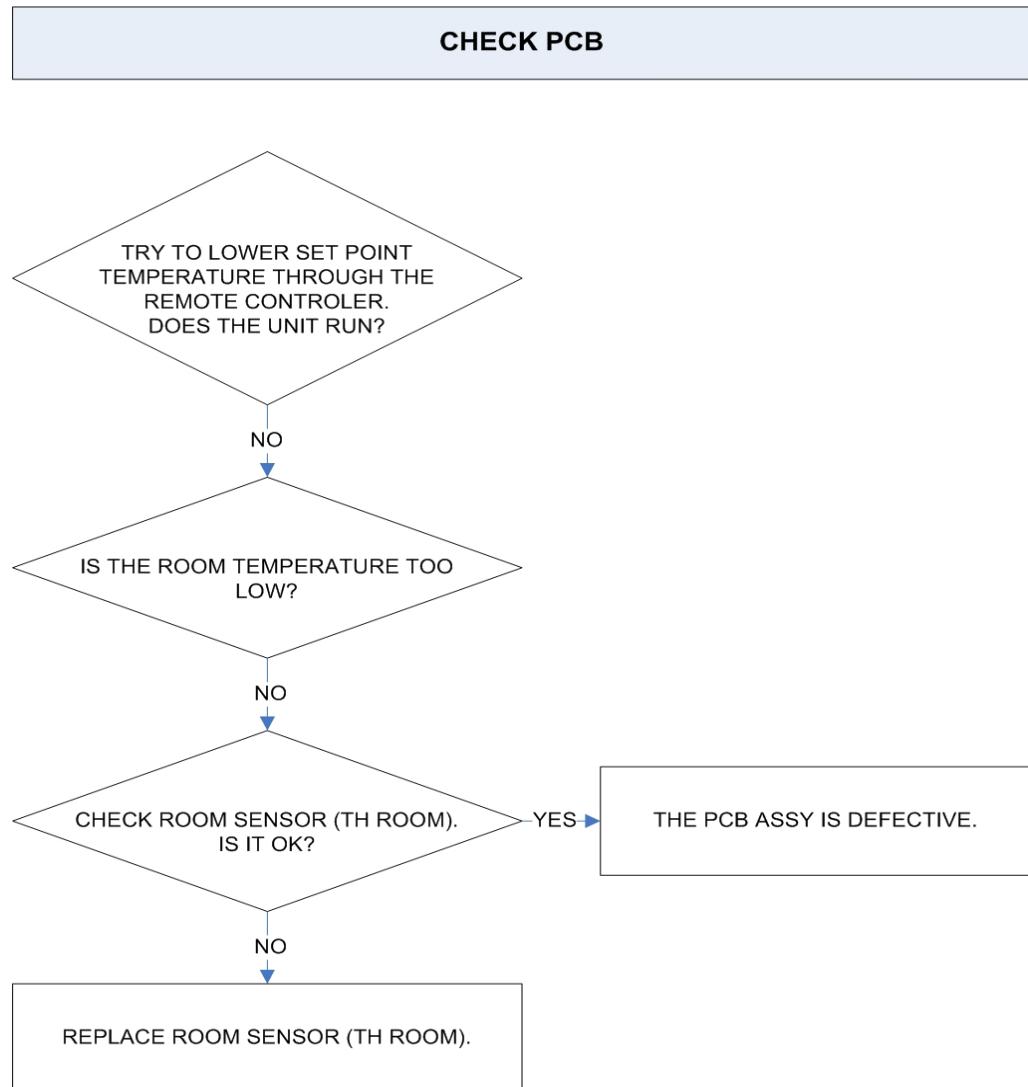
NOTE: In case of emergency the air conditioner can work by draining the condensate from the little pipe into a rather short container. Extract the little pipe and remove the cap.



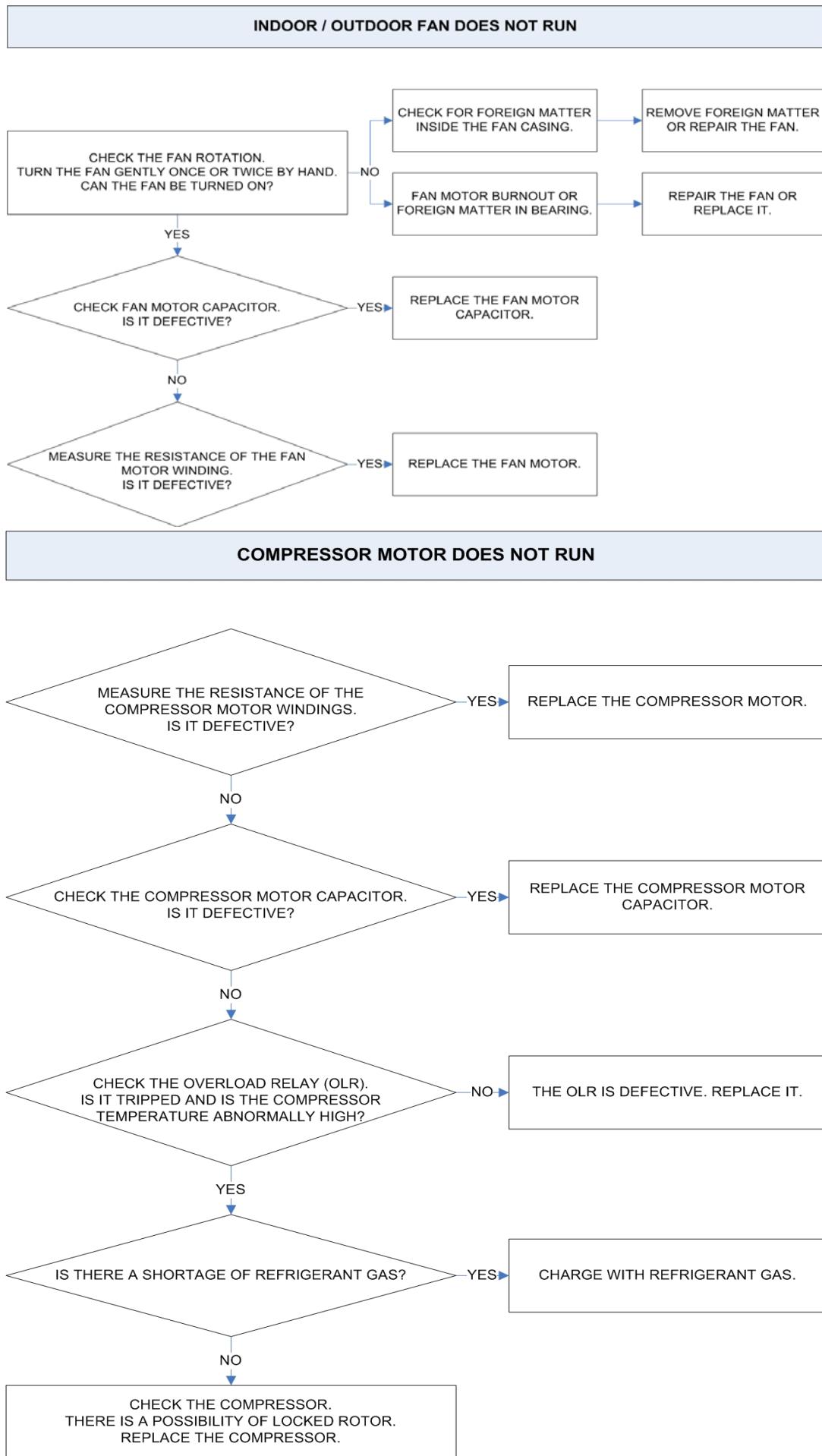
## **D**UNIT AND COMPRESSOR DO NOT RUN.

The unit does not run when air conditioner is in the following conditions:

- When the room temperature is below the setting temperature.
- During the protection modes.

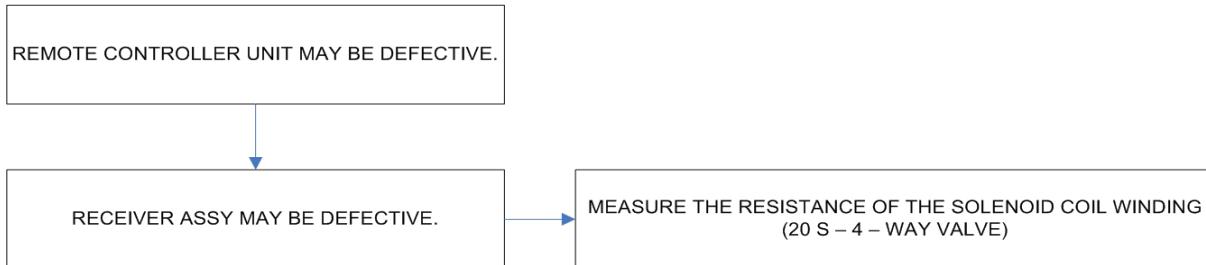


**E SOME PARTS OF THE AIR CONDITIONER DO NOT OPERATE.**



**F** AIR CONDITIONER OPERATES, BUT ABNORMALITIES ARE OBSERVED.

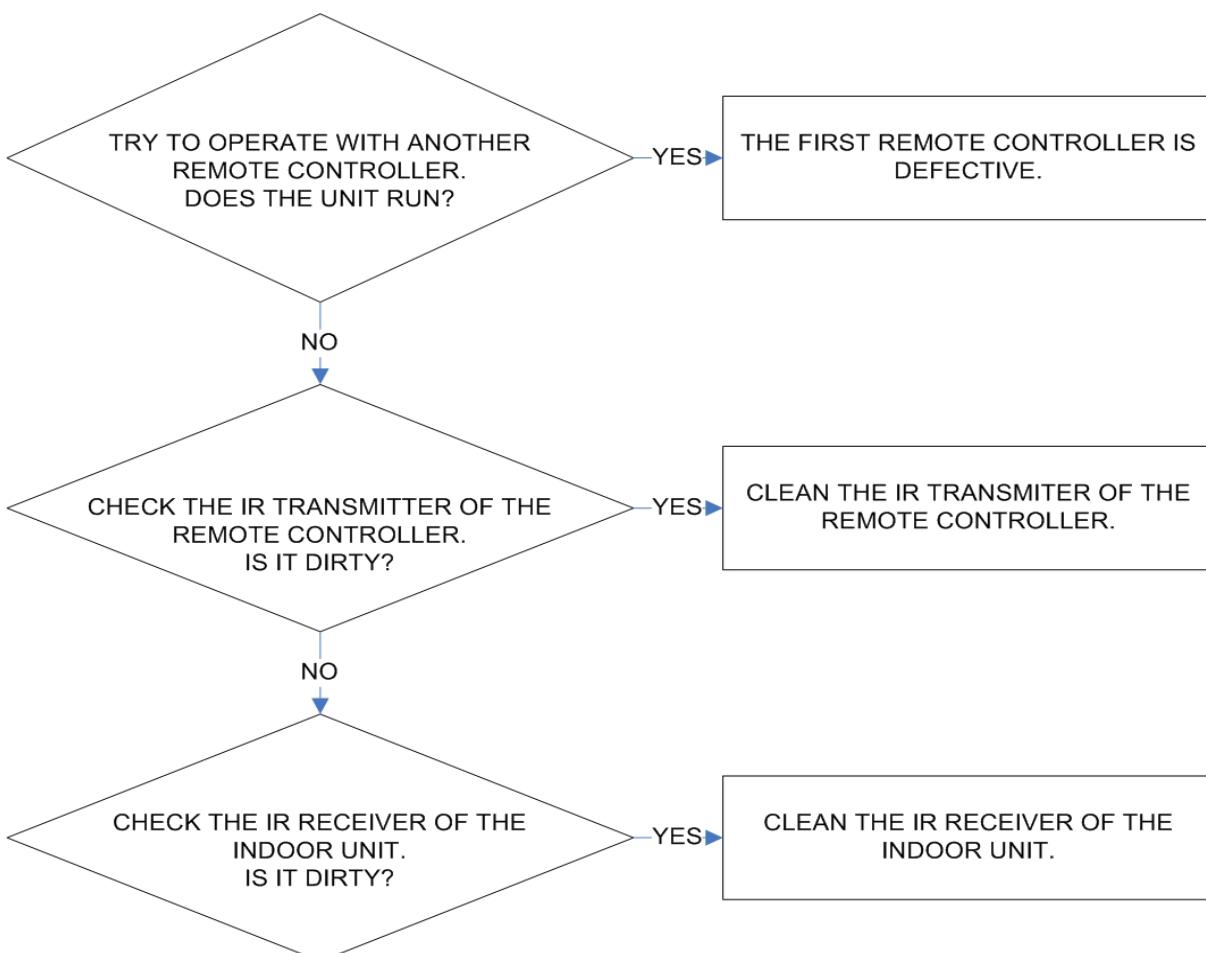
OPERATION DOES NOT SWITCH FROM HEAT TO COOL AND/OR FROM COOL TO HEAT



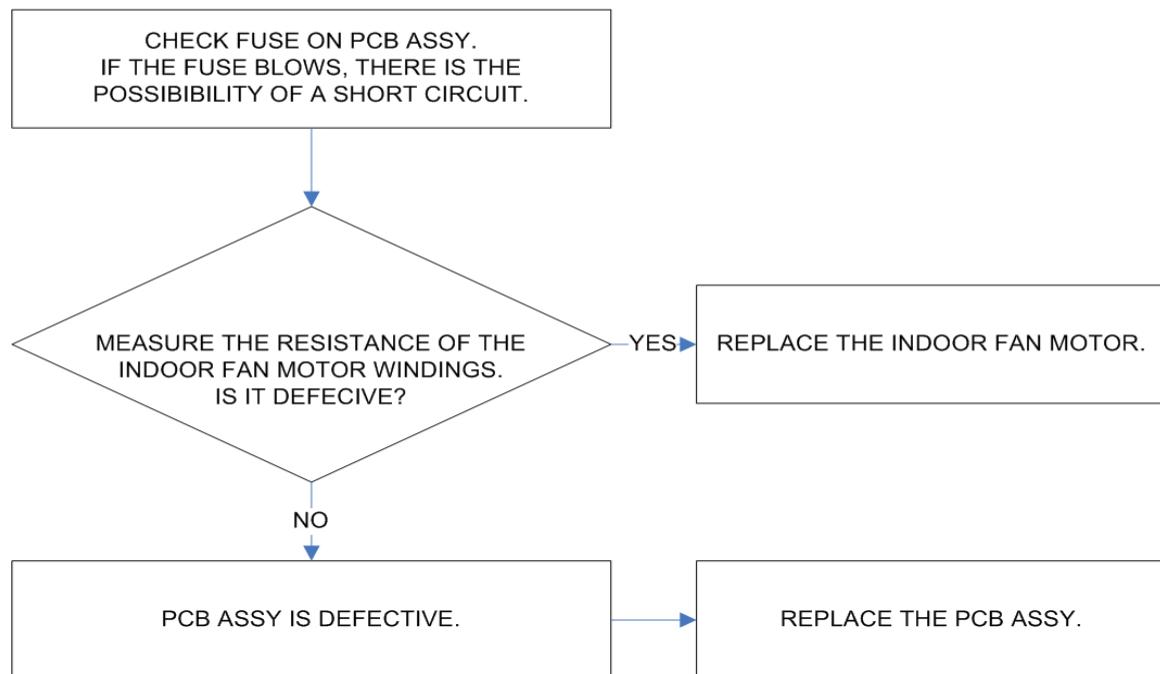
CHECK "MODE BUTTON" ON THE UNIT



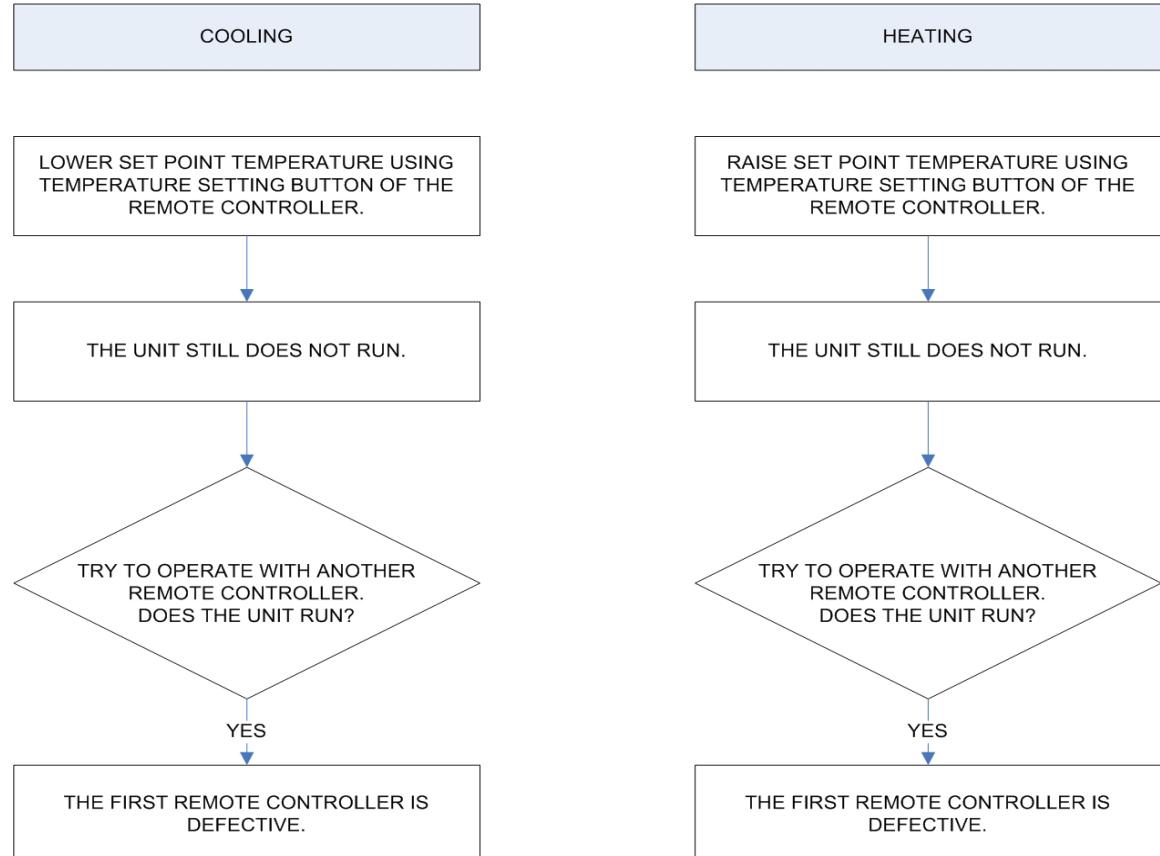
CHECK REMOTE CONTROL UNIT



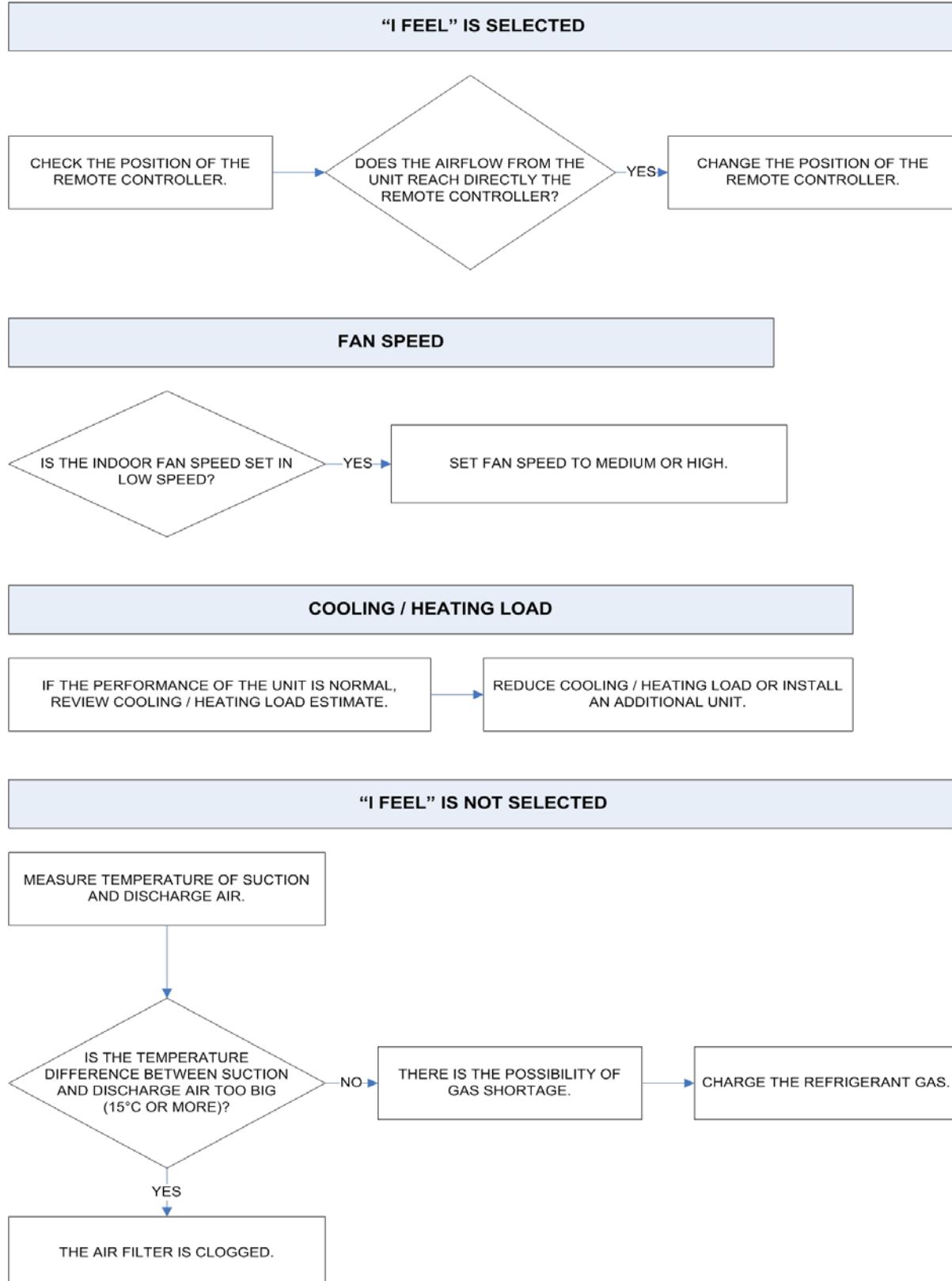
## CHECK FUSE ON PCB ASSY IN THE UNIT



## CHECK SETTING TEMPERATURE



## **G** POOR COOLING OR HEATING.



**H EXCESSIVE COOLING OR HEATING.**

**"I FEEL" IS SELECTED**

THE REMOTE CONTROLLER OF THE UNIT IS PLACED IN A POSITION WHERE IT CAN NOT DETECT PROPERLY ROOM TEMPERATURE.

CHANGE THE POSITION OF THE REMOTE CONTROLLER.

**I A SENSOR IS DEFECTIVE.**

**ROOM SENSOR (TH ROOM)**

STANDBY LED ON THE FRONT SIDE OF THE UNIT IS BLINKING.

ROOM SENSOR (TH ROOM) IS DEFECTIVE.

**INDOOR COIL SENSOR**

STANDBY AND OPERATION LEDS ON THE FRONT OF THE UNIT ARE BLINKING.

INDOOR COIL SENSOR IS DEFECTIVE.

# 11. CHECKING ELECTRICAL COMPONENTS

## 1) Measurement of Insulation Resistance

- The insulation is in good condition if the resistance exceeds 1MΩ.

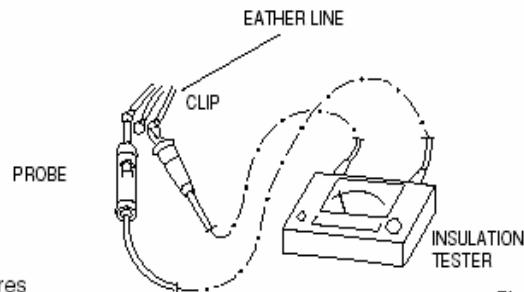


Fig. 1

### a) Power Supply Wires

Clamp the earthed wire of the power supply wires with the lead clip of the insulation resistance tester and measure the resistance by placing a probe on either of the power wires (Fig. 1).

Then measure the resistance between the earthed wire and the other power wires (Fig. 1).

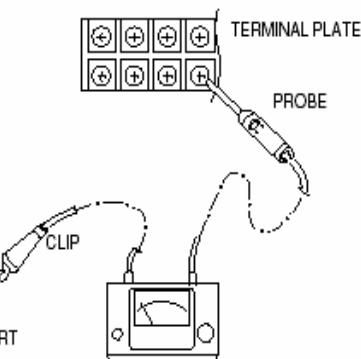


Fig. 2

### b) Unit

Clamp an aluminium plate fin or copper tube with the lead clip of the insulation resistance tester and measure the resistance by placing a probe on N terminal, and then on L terminal the terminal plate (Fig. 2).

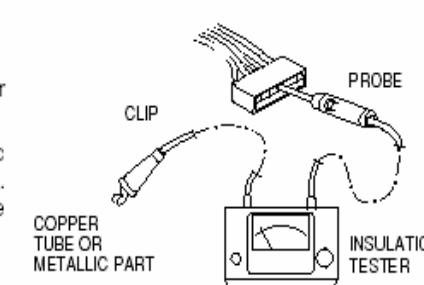


Fig. 3

### c) Measurement of Insulation Resistance for Electrical Parts

Disconnect the lead wires of the desired electric part from terminal plate, PCB Ass'y, capacitor, etc. Similarly disconnect the connector. Then measure the insulation resistance. (Fig. 1 to 4).

Refer to Electric Wiring Diagram

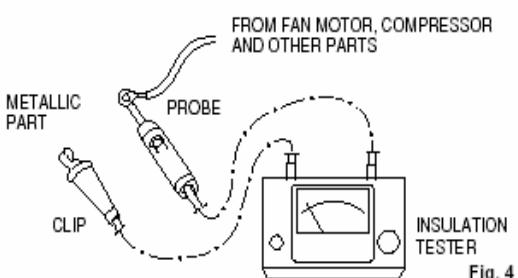


Fig. 4

### NOTE

- If the probe cannot enter the poles because the hole is too narrow then use a probe with a thinner pin.

## 2) Checking Continuity of Fuse on PCB Ass'y

- Remove PCB Ass'y from electrical component box. (Fig. 5).
- Then pull out the fuse from PCB Ass'y.

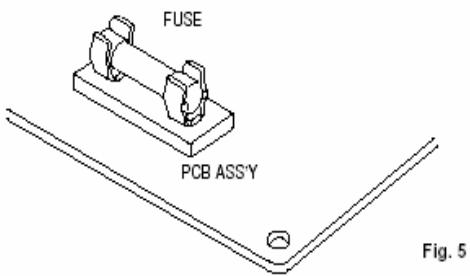


Fig. 5

- Check continuity of fuse by the multimeter (Fig. 6).

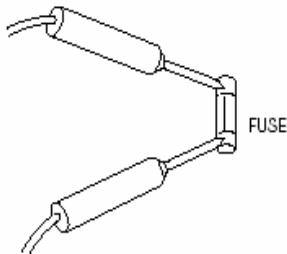


Fig. 6

## 3) Checking Motor Capacitor

- Remove the lead wires from the capacitor terminals, and then place a probe on the capacitor terminals as shown in Fig. 7. Observe the deflection of the pointer, setting the resistance measuring range of the multimeter to the maximum value. The capacitor is "good" if the pointer bounces to a great extent and the gradually returns to its original position. The range of deflection and deflection time differ according to capacity of the capacitor.

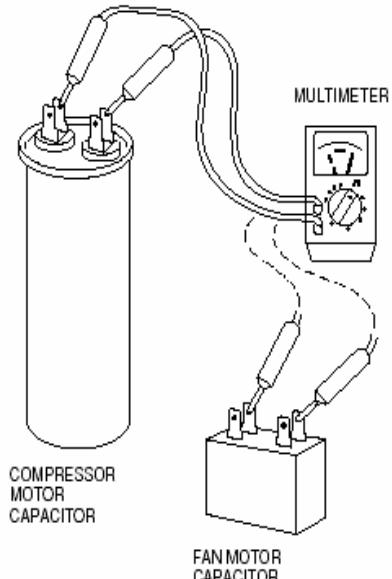


Fig. 7

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